

REMARKS

Claims 1-20 remain pending in this application. Claims 1, 2, 4-7, 10, 11, 13-17 and 19 are amended. Claims 3, 8, 9, 12, 18 and 20 remain unchanged.

35 U.S.C. §103

Claims 1-8 and 10-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wang et al. (US 6,266,365) in view of Sawahashi et al. (5,774,494), and further in view of Lewis (US 2003/0231705). Under U.S.C. § 103, the prior art reference (or references when combined) must teach or suggest all of the claim limitations (MPEP § 706.02(j)).

Claim 1 is amended to recite, inter alia, “An apparatus for performing a correlation with respect to a received signal, the apparatus comprising...a first correlation arrangement that correlates for a primary synchronization code in the received signal to produce a first correlated signal...a second correlation arrangement that correlates for a secondary synchronization code in the received signal to produce a second correlated signal... and logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated signal.” Support for the amendment is found, among other places, on page 6, line 8 to page 7, line 26 of applicants’ specification as well as in Figs. 2A and 2B.

The “first correlation arrangement that correlates for a primary synchronization code in the received signal to produce a first correlated signal...a second correlation arrangement that correlates for a secondary synchronization code in the received signal to produce a second correlated signal... and logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated signal” recitation of amended claim 1 is an important aspect of applicants’ invention. As discussed on page 1 of applicants’ specification (page 1, line 24 to page 2, line 2):

In processing received CDMA signals, it may be difficult to detect long symbols in the presence of a frequency offset. Because the chips (each chip is equal to one bit in a spreading code) that make up a symbol may tend to rotate in the presence of a frequency offset, it is possible for the chips to rotate

completely around the complex plane during the integration period of one symbol. When this happens, the chips may destructively combine to produce a very small correlation peak. One method may be to solve this problem may be to implement a frequency synchronization block in hardware, but such solutions may be undesirably expensive in order to be able to tolerate higher frequency offsets. Absent more expensive hardware solutions, a receiver may only be able to detect long symbols in the presence of relatively low frequency offsets. An improved method and apparatus for the detection of long symbols in the presence of a relatively high frequency offset is desirable.

In other words, having “first correlation arrangement that correlates for a primary synchronization code in the received signal to produce a first correlated signal...a second correlation arrangement that correlates for a secondary synchronization code in the received signal to produce a second correlated signal... and logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated signal” overcomes the problem of detecting or correlating long symbols in the presence of a frequency offset since the combination of the frequency adjustment signal, derived from the first correlated signal, with the second correlation signal reduces and/or removes the frequency offset from the second correlated signal. Indeed, this benefit is further discussed in applicants’ specification on page 6, lines 12-16:

The Secondary SCH correlation block 100 may use the output of a correlation for the Primary SCH channel to derive a frequency adjustment that is applied prior to the second stage of correlation for the Secondary SCH channel. Thus, the Secondary SCH detection algorithm may work under much higher frequency offsets than would otherwise be possible.

Wang appears to disclose a CDMA receiver having a parallel correlator structure that operates in two modes. In the first mode, an initial search mode, the parallel correlator structure is used to determine the strong signal paths and associated delays. In the second mode, a tracking mode, the parallel correlator structure acts to correct for slight changes in the phase of the existing found strong signal paths. (See, e.g., column 4, lines 30-35). Wang does not appear to disclose the “first correlation arrangement that correlates for a primary synchronization code in the received signal to produce a first correlated signal...second correlation arrangement that correlates for a

secondary synchronization code in the received signal to produce a second correlated signal... and logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated signal” elements of amended claim 1.

Sawahashi appears to disclose a frequency correction device for a spread-spectrum communication receiver requiring no high-accuracy, high stable VCO as a local signal oscillator. (See, e.g., the Abstract and column 2, lines 54-63). Similarly to Wang, Sawahashi does not appear to disclose the “first correlation arrangement that correlates for a primary synchronization code in the received signal to produce a first correlated signal...second correlation arrangement that correlates for a secondary synchronization code in the received signal to produce a second correlated signal... and logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated signal” elements of amended claim 1.

Lewis merely appears to disclose using Golay correlators for correlating a signal having primary and secondary code words (page 2, paragraph 15, lines 15-35 and page 4, paragraph 24). However, similarly to Wang and Sawahashi, Lewis does not appear to disclose the “first correlation arrangement that correlates for a primary synchronization code in the received signal to produce a first correlated signal...second correlation arrangement that correlates for a secondary synchronization code in the received signal to produce a second correlated signal... and logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated signal” elements of amended claim 1.

As a result, neither Wang, Sawahashi, nor Lewis, either alone or combined teach the “first correlation arrangement that correlates for a primary synchronization code in the received signal to produce a first correlated signal...second correlation arrangement that correlates for a secondary synchronization code in the received signal to produce a second correlated signal... and logic that derives a frequency adjustment signal from the first correlated signal and combines the frequency adjustment signal with the second correlated signal to reduce a frequency offset in the second correlated

signal” elements of amended claim 1. Therefore, it is respectfully proposed that the rejection of amended claim 1 under 35 U.S.C. § 103(a) is overcome in accordance with the above amendment and remarks and notice to that effect is earnestly solicited.

Claims 2-8 depend from amended claim 1, or depend from claims depending from amended claim 1, should therefore also be allowable for the same reasons, as well as for the additional recitation contained therein. Applicants respectfully requests reconsideration of the rejection of the claims in view of the above remarks.

Independent claim 10 is amended to include elements similar to the elements of amended independent claim 1 and should therefore be allowable for the same reasons discussed above as well as for the additional recitations contained therein. Therefore, it is respectfully proposed that the rejection for obviousness is overcome. Claims 11-14 being dependent on and further limiting independent claim 10, should be allowable for that reason, as well as for the additional recitations contained therein. Applicants respectfully requests reconsideration of the rejection of the claims in view of the above remarks.

Independent claim 15 is amended to include elements similar to the elements of amended independent claim 1 and should therefore be allowable for the same reasons discussed above as well as for the additional recitations contained therein. Therefore, it is respectfully proposed that the rejection for obviousness is overcome. Claims 16-20 being dependent on and further limiting independent claim 10, should be allowable for that reason, as well as for the additional recitations contained therein. Applicants respectfully requests reconsideration of the rejection of the claims in view of the above remarks.

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Wang et al. (US 6,266,365) in view of Sawahashi et al. (5,774,494) and Lewis (US 2003/0231705), and further in view of Popovic’ (US6567482). Claim 9 depends from amended claim 1 and should therefore also be allowable for the same reasons, as well as for the additional recitation contained therein. Applicants respectfully requests reconsideration of the rejection of claim 9 in view of the above remarks.

Having fully addressed the Examiner’s rejections it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited.

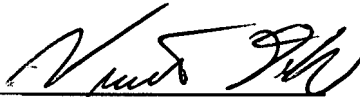
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If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at (818) 260-3727, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believe due other than the fees discussed above. However, if an additional fee is due, please charge the additional fee to Deposit Account 07-0832.

Respectfully submitted,
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I hereby certify that this amendment is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

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